Cold Climate Housing Research Center

CCHRC

Hybrid Micro Energy Program
Award No. 01163
Quarterly Report: July 1, 2011 to September 30, 2011

Per the terms of the Hybrid Micro-Energy Program (HMEP) grant agreement, the three priority renewable energy systems to be evaluated are:

A small scale biomass combined heat and power (CHP) system that can convert wood into heat and power for use in small scale loads including residences, small community facilities, and potentially small communities and/or neighborhoods.

CCHRC has used a variety of methods over several years to search for, identify, and procure a small-scale biomass CHP unit that shows promise of meeting the practical and economic demands of rural Alaska. Currently, CCHRC is preparing a report documenting current CHP technology, our observations and experience from our search for a small-scale biomass CHP, and potential suitability for use in Alaska.

A ground source heat pump project that includes solar thermal collection to recharge the ground

During the 3rd quarter of 2011 CCHRC and the Fairbanks North Star Borough School District started the heat pump components of the hybrid heat pump system. Since September 9 the heat pump has been running during times when the school is occupied. CCHRC has been monitoring the system closely and for the first month the COP has average around 4. Additionally CCHRC put together a website to teach the students about the heat pump and to allow the school district to monitor the performance of the heat pump in real-time.

http://www.cchrc.org/weller_school/

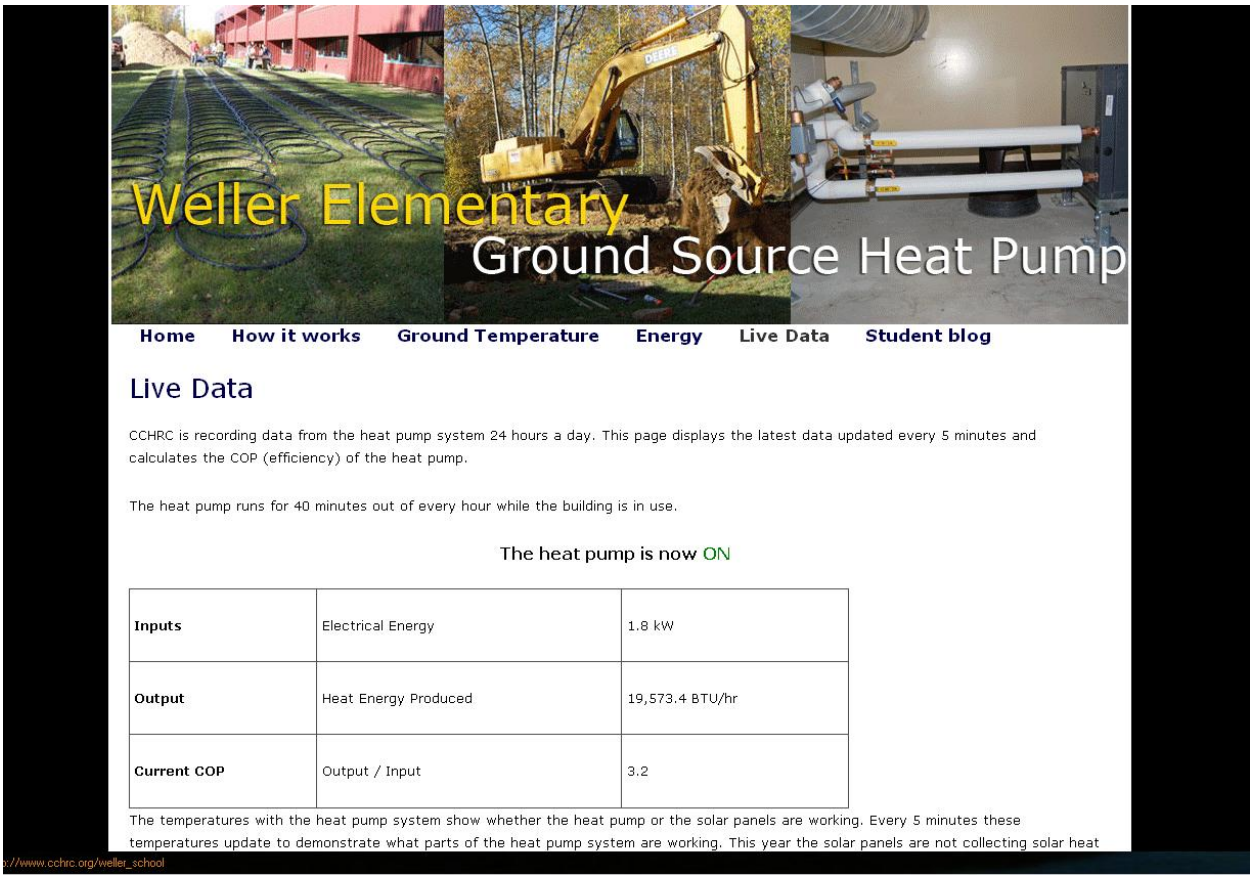

Figure 1. A screen shot of the live data page from the Weller heat pump website

A combined solar photovoltaic (PV) and wind system integrated into an energy efficient load design.

The Denali Commission funding is being utilized to monitor and report the performance of a combined solar photovoltaic (PV) and wind system installed at the Anaktuvuk Pass house. The power systems were funded by the Yukon River Inter-Tribal Watershed Council (YRITWC), who is also a partner in the overall evaluation of the alternative energy systems. GW Scientific and Campbell Scientific are providing in-kind matching support. CCHRC, YRITWC and GW Scientific comprise the main technical interpretative team. Remote Power Inc. has been providing valuable in-kind matching technical support related to the wind and solar power systems. During the 3rd quarter CCHRC began collecting information on the system from all of the project partners in order to compile a final report.